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Selection Criteria for Scuba Diver's Wetsuit

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Introduction: According to scuba diving market reports, more people are increasingly interested and committed in scuba diving. As a popular recreational sport, scuba diving has seen consistent growth in the past seven years with a 6% increase over the prior year (Outdoor Foundation, 2014; Sporting Goods Manufacturers Association [SGMA], 2012). This specific market is made up of approximately 65% males and 35% female (DEMA, 2014; PADI, 2014). The majority of scuba divers started diving in their late twenties and continue to participate for many more years through continued dive education, buying more or replacement equipment and clothing, and diving off boats or through a destination resort (PADI, 2014; DEMA, 2014). It can then be said that scuba divers are a diverse age and gender group with a commitment to the sport that continues for many years. The purpose of this study was to assess the functional, expressive, and aesthetic attributes of wetsuits considered important by scuba divers. To identify the functional, expressive, and aesthetic attributes of wetsuits, FEA Consumer Needs Model (Lamb & Kallal, 1992) was used. Research questions examined are: (1) What are the wetsuit attributes considered important by scuba divers based on gender? (2) What are the wetsuit attributes considered important by scuba divers based on age? (3) What are the wetsuit attributes considered important by scuba divers based on scuba diving commitment level?

Method: The survey was completed online by participants recruited through advertisements from dive shops, a diving magazine/newsletter, and an international training organization. A total of 285 survey was used for data analysis. Participants were composed of 189 male and 96 female scuba divers. Age group 18-39 had 44 participants, age group 40-59 had 138 participants, and age group 60-84 had 89 participants. Participants' commitment level to the scuba diving was measured by 7 items on 5-point scale. Fifteen items measuring importance of wetsuit selection criteria was adopted from previous studies in functional garments. (Bye & Hakala, 2005; Jin & Black, 2012; Mitchka, Black, Heitmeyer, & Cloud, 2009). The importance level was evaluated on a 7-point scale (1= *extremely unimportant*, 7= *extremely important*). Examples of the items were wetsuit to look unique, wetsuit to look fashionable, ease of movement, abrasion resistance, thermal properties of wetsuit, overall fit, design, fabric etc.

Results and Discussion: Exploratory factor analysis was conducted for 15 items measuring importance of wetsuit selection criteria. The result revealed three factors with eigenvalues greater than 1 that accounted for 54.27% of the variance: aesthetic/expressiveness (7 items), functional performance, and functional quality (5 items). Reliabilities for three factors were assessed by Cronbach's alpha and found to be within acceptable ranges, .874, .660, and .608, respectively. MANOVA revealed a significant gender difference in wetsuit selection criteria [$F(3, 270) = 2.741, p < .05$]. Further analyses showed a significant main effect for gender on wetsuit

selection criteria in terms of functional performance [$F(1, 272) = 6.248, p < .05$]. Female showed significantly higher mean score for functional performance [female ($N=93$): $M=6.59$ and male ($N=181$): $M=6.40$]. This result indicates that female scuba divers are more likely to rely on functional performance of wetsuit when selecting wetsuits than male scuba divers. The results of MANOVA also revealed significant age differences in wetsuit selection criteria [$F(6, 532) = 3.027, p < .01$]. Additional analyses showed a significant main effect for age on wetsuit selection criteria only for the functional performance factor [$F(2, 268) = 4.548, p < .05$]. Post-hoc analyses further demonstrate that the functional performance factor tends to be more important for older scuba divers (60 to 84 years old: $M=6.61$) than younger scuba divers (18 to 39 years old: $M=6.30$).

MANOVA results showed a significant multivariate main effect for commitment levels on scuba divers' wetsuit selection criteria, [$F(6, 512) = 3.076, p < .01$]. Further analyses revealed a significant main effect for commitment levels on wetsuit selection criteria for the aesthetic/expressive factor [$F(2, 259) = 4.519, p < .05$] and the functional quality factor [$F(2, 259) = 4.731, p < .01$]. Post-hoc analyses also demonstrate that scuba divers with medium and high level commitment (High: $M=6.41$; Medium: $M=6.45$) are more likely to focus on functional quality when selecting wetsuits than those with low commitment (Low: $M=6.19$). The result also determines that the aesthetic/expressive factor is significantly more important for the high commitment group (High: $M=3.83$) than for medium and low commitment groups (Medium: $M=3.30$; Low: $M=3.30$).

Conclusion: This study demonstrates attributes of wetsuits that are considered important by scuba divers based on their gender, age, and commitment level. Female divers and older divers regard the functional performance attributes of wetsuit as more important than male divers and younger divers. Since female divers and older divers generally have greater physical needs when scuba diving, they may be more concerned about the functional performance attributes of the wetsuit. More committed divers may have greater knowledge of wetsuits and are more conscious of how they look in the wetsuit to others, and therefore regard the functional quality and aesthetic/expressive attributes of the wetsuit as important.

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